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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/866,853	05/30/2001	Kazuo Tamura	KOJIM-401	7262

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EXAMINER

SHEEHAN, JOHN P

ART UNIT

PAPER NUMBER

1742

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6

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/866,853	<b>Applicant(s)</b> TAMURA ET AL.	
	<b>Examiner</b> John P. Sheehan	<b>Art Unit</b> 1742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 October 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3 and 6-18 is/are pending in the application.
- 4a) Of the above claim(s) 9, 10, 15 and 16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-8, 11-14, 17 and 18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
    If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
    a) ☐ All    b) ☐ Some \*    c) ☐ None of:  
        1. ☐ Certified copies of the priority documents have been received.  
        2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
        3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
    \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
    a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION*****Election/Restrictions***

Newly submitted claims 9, 10, 15 and 16 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claims 1 to 3, 6 to 8, 11 to 14, 17 and 18 and claims 9, 10, 15 and 16 are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process such as for example, a process wherein the cut and/or polished magnet is not heat treated instead of the claimed process wherein the cut and/or polished magnet is heat treated in an oxygen containing atmosphere as recited in the instant claims. While it is noted that claim 9, 10, 15 and 16 are product-by-process claims and incorporate the same process steps as described in process claims 1 to 3, 6 to 8, 11 to 14, 17 and 18, a product defined by the process by which it can be made is still a product claim (In re Bridgeford, 149 USPQ 55 (CCPA 1966)) and can be restricted from the process if the examiner can demonstrate that the product as claimed can be made by another materially different process such as the alternative process described above. See In re Brown, 173

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U.S.P.Q 685, and In re Fessmann, 180 U.S.P.Q. 324, for analysis of weight given to process step recitations in product claims.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 9, 10, 15 and 16 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03..

### ***Claim Objections***

1. Claims 17 and 18 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

I. Claims 17 and 18 read on the use of a pure "argon and/or nitrogen atmosphere". However, claims 1 and 2 require the presence of oxygen in the heat treatment atmosphere. Thus claims 17 and 18 do not further limit claims 1 and 2 but appear to broaden the scope of the claimed subject matter.

### ***Claim Rejections - 35 USC § 112, 1<sup>st</sup> paragraph***

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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2. Claims 17 and 18 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

I. In claims 17 and 18, the phrase "an argon and/or nitrogen atmosphere" does not find support in the specification as filed. First, this language reads on pure argon and pure nitrogen. However, there is not support for the use of pure argon or pure nitrogen in the specification as filed. Second, this language reads on the use of a combination of argon and nitrogen. However, there is not support in the specification as filed for the use of the combination of argon and nitrogen.

***Claim Rejections - 35 USC § 112, 2<sup>nd</sup> Paragraph***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1 and 2 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. I. In claim 1, line 15, "the sintered magnet" lacks a clear antecedent. The phrase, "the sintered magnet" finds literal antecedent support in claim 1, line 10, the compact after sintering. However in line 15, it would appear that the workpiece is not the sintered magnet of line 10 but rather the cut and/or polished sintered magnet of line

14.

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II. In claim 2, lines 20 and 21, "the magnet" lacks a clear antecedent. It is questioned whether "the magnet" in line 20 should be --the sintered magnet-- and the phrase, "the magnet" in line 21 should be --the cut and/or polished sintered magnet--.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 7, 11, 13 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Imaizumi et al. (Imaizumi, US Patent No. 4,902,357) taken in view of Ohashi et al. (Ohashi, US Patent No. 4,992,234, newly cited in this Office Action).

Imaizumi teaches a method of making a sintered rare earth-transition metal-boron permanent magnet having a composition that appears to overlap the alloy composition recited in the instant claims (column 1, lines 61 to 65 and each of the Examples). Imaizumi's method comprises crushing a rare earth-transition metal-boron alloy, compacting the alloy powder in a magnetic field, sintering the powder compact, machining the sintered compact and heat treating the machined compact in an atmosphere having an oxygen partial pressure of  $10^{-8}$  to 1 Torr (column 2, lines 1 to 20, also see each of the Examples in this reference). The heat treatment in an atmosphere having an oxygen partial pressure of  $10^{-8}$  to 1 Torr creates an oxide surface layer on the

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magnet which improves the corrosion resistance of the magnet (column 2, lines 40 to 45). Imaizumi teaches specific examples wherein the heat treatment in the oxygen containing atmosphere lasts 30 minutes (column 3, lines 10 and 59), which is encompassed by the instant claims.

Ohashi teaches a method of making sintered rare earth-iron-boron magnets. Ohashi teaches that rare earth-iron-boron alloys are highly susceptible to oxidation in air and that it has been conventional practice to pulverize the rare earth-iron-boron alloy in a non-oxidizing atmosphere or inert gas such as nitrogen, argon or the like (column 1, lines 58 to 63).

“In respect of the oxidation of the R-Fe-B alloys or, in particular, fine powders of such an alloy in the atmospheric air, it is a conventional practice that pulverization of the alloy ingot into powders is conducted in an atmosphere of non-oxidizing or inert gas such as nitrogen, argon and the like or in an organic solvent such as n-hexane and the like.” (emphasis added by the Examiner).

Imaizumi and the claims differ in that Imaizumi does not teach the exact same alloy composition, the same heat treatment times and partial pressures and is silent with respect to the magnetic properties of the intermediate product and the use of crushing the rare earth-iron-boron alloy in an oxygen-free atmosphere.

However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because Imaizumi's alloy composition and the heat treatment times and partial pressures overlap the claims, thereby establishing a prima facie case of obviousness, *In re Malagari*, 182 USPQ 549 and MPEP 2144.05. Further, with respect to the magnetic properties of the

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intermediate product it is the Examiner's position that in view of the fact that Imaizumi's alloy composition overlap the alloy composition recited in the claims and is made by a process which is the same as recited in the instant claims one of ordinary skill in the art would expect that Imaizumi's intermediate would have the same properties as applicants' intermediate product.

"Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a prima facie case of either anticipation or obviousness has been established, In re Best, 195 USPQ 430, 433 (CCPA 1977). 'When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.' In re Spada, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). Therefore, the prima facie case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed product. In re Best, 195 USPQ 430, 433 (CCPA 1977)." see MPEP2112.01.

Further, with respect to crushing the rare earth-iron-boron alloy in an oxygen-free atmosphere, it is the Examiner's position that although Imaizumi is silent in this regard this is purely a conventional procedure as taught by Ohashi.

3. Claims 2, 6, 8, 12, 14 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takebuchi et al. (Takebuchi, US Patent No. 5,595,608) in view of Imaizumi et al. (Imaizumi, US Patent No. 4,902,357)

Takebuchi teaches making sintered rare earth-transition metal-boron permanent magnets using a two alloy powder mixture (column 4, lines 9 to 14) wherein the composition of the alloy powders overlap the alloy powders recited in the instant claims (column 3, lines 8 to 30 and column 5, lines 14 to 33) and the powders are formed by



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pulverizing an alloy ingot using hydrogen decrepitation (column 5, line 63 to column 6, line 5).

Imaizumi teaches a method of making a sintered rare earth-transition metal-boron permanent magnet. Imaizumi's method comprises crushing a rare earth-transition metal-boron alloy, compacting the alloy powder in a magnetic field, sintering the powder compact, machining the sintered compact and heat treating the machined compact in an atmosphere having an oxygen partial pressure of  $10^{-8}$  to 1 Torr (column 2, lines 1 to 20, also see each of the Examples in this reference). The heat treatment in an atmosphere having an oxygen partial pressure of  $10^{-8}$  to 1 Torr creates an oxide surface layer on the magnet which improves the corrosion resistance of the magnet (column 2, lines 40 to 45). Imaizumi teaches specific examples wherein the heat treatment in the oxygen containing atmosphere lasts 30 minutes (column 3, lines 10 and 59), which is encompassed by the instant claims.

Ohashi teaches a method of making sintered rare earth-iron-boron magnets. Ohashi teaches that rare earth-iron-boron alloys are highly susceptible to oxidation in air and that it has been conventional practice to pulverize the rare earth-iron-boron alloy in a non-oxidizing atmosphere or inert gas such as nitrogen, argon or the like (column 1, lines 58 to 63).

“In respect of the oxidation of the R-Fe-B alloys or, in particular, fine powders of such an alloy in the atmospheric air, it is a conventional practice that pulverization of the alloy ingot into powders is conducted in an atmosphere of non-oxidizing or inert gas such as nitrogen, argon and the like or in an organic solvent such as n-hexane and the like.” (emphasis added by the Examiner).

Takebuchi and the claims differ in that Takebuchi does not teach heat-treating the sintered magnet in an oxygen-containing atmosphere and is silent with respect to crushing the rare earth-iron-boron alloy in an oxygen-free atmosphere.

However, one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because one of ordinary skill would have been motivated to apply Imaizumi's heat treatment to Takebuchi's sintered magnet in an oxygen-containing atmosphere so as to improve the corrosion resistance of the finished magnet.

Further, with respect to crushing the rare earth-iron-boron alloy in an oxygen-free atmosphere, it is the Examiner's position that as taught by Ohashi this is conventional.

### ***Response to Arguments***

4. Applicant's arguments filed October 7, 2002 have been fully considered but they are not persuasive.

Applicants' argument that Imaizumi does not teach crushing the rare earth-iron-boron alloy in an oxygen free atmosphere as recited in the instant claims is not persuasive. As stated in the newly written rejections crushing the rare earth-iron-boron alloy in an oxygen free atmosphere is, as taught by Ohashi, conventional so as to reduce the oxidation of the rare earth-iron-boron alloy.

Applicants' further argument that because Imaizumi does not teach crushing the rare earth-iron-boron alloy in an oxygen free atmosphere Imaizumi's rare earth-iron-boron powder would not have a low oxygen concentration of "up to 8.0% by weight" as

recited in claims 1 and 2 is not persuasive. First, claim 2 is silent as to the oxygen content of the crushed rare earth-iron-boron alloy. Second, applicants have not presented any evidence to support their allegation regarding the oxygen content of Imaizumi's rare earth-iron-boron powder.

Applicants' arguments that Imaizumi "shows a preference to an oxygen-containing atmosphere" in the final heat-treating step (applicants' response submitted October 7, 2002, page 8, first paragraph) is not persuasive and actually appears to support the Examiner's position regarding the rejection.

Applicants state that they have discovered that the exclusion of oxygen leads to advantageous magnets and refer to Example 1, Comparative Examples 1 and 2 and Figures 1 and 2 of the instant specification. Applicants point out that in Example 1 the heat treatment is in an argon atmosphere that results in improved magnetic properties and corrosion resistance. The Examiner is not persuaded. First, it is pointed out that in Example 1 the heat treatment atmosphere is not argon but rather an argon atmosphere containing oxygen at a partial pressure of  $10^{-5}$  Torr (specification, page 9, line 15) which is encompassed by Imaizumi's oxygen partial pressure of  $10^{-8}$  to 1 Torr (column 2, lines 1 to 11). The data that applicants have referred to is directed to only one example of the claimed invention. In view of this, the data referred to by applicants is not considered to be commensurate in scope to the claims, *In re Dill* 202 USPQ 805. General superiority cannot be inferred from the results obtained using a single embodiment of the claimed invention, *In re Greenfield*, 197 USPQ 227, 230. Further,

applicants' comparison does not compare the claimed invention to the closest known prior art, Imaizumi, MPEP 716.02(e).

Applicants referring to Imaizumi's Example 6 and Figure 2 assert that "Imaizumi notes approvingly the formation of rust layer on its magnets' surface" (applicants' response, page 8, last 5 lines). The Examiner is not persuaded. Imaizumi's Example 6 and Figure 2, referred to by applicants, are silent with respect to rust except to say that, "almost no rust was noted" (column 5, lines 11 and 12) on the tested magnets treated by Imaizumi's method. Further, in view of applicants' claims 15 and 16 (withdrawn from consideration by the Examiner, by constructive election) which recite the presence of oxides it appears that applicants' process produces an oxide or rust layer.

With respect to the rejection based on the combination of Takebuchi with Imaizumi applicants incorporate by reference the arguments presented with respect to the rejection based on Imaizumi alone. In like manner, the Examiner refers to his position set forth above with respect to Imaizumi.

5. Applicants state, "that Imaizumi does not teach the manners of oxygen exclusion recited in the instant claims nor the advantages thereof" and that, "Takebuchi does not even disclose a final heat treating step and thus, teaches nothing regarding the oxygen exclusion in such a step" (applicants' response, page 9, last paragraph). The Examiner is not persuaded. The instant claims do not recite oxygen exclusion in the final heat treatment step but rather include the presence of oxygen with a partial pressure of  $10^{-6}$  to  $10^0$  torr or  $10^{-6}$  to 1 torr which overlaps Imaizumi's oxygen partial pressure of  $10^{-8}$  to 1 torr (column 2, lines 1 to 11). In response to applicant's arguments against the

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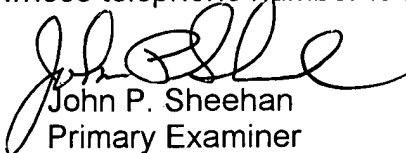
references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). As set forth above in the statement of the rejection, Examiner is not relying on Takebuchi to teach final heat treating step.

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Sheehan whose telephone number is (703) 308-3861. The examiner can normally be reached on T-F (6:30-5:00) Second Monday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (703) 308-1146. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

  
John P. Sheehan  
Primary Examiner  
Art Unit 1742

jps  
December 4, 2002